HOOD RIVER PRODUCTION PROGRAM

8805303

SHORT DESCRIPTION:

Implement actions outlined in the Hood River and Pelton Ladder Master Plans pertaining to acclimation and habitat. Coordinate Pelton Ladder production.

SPONSOR/CONTRACTOR: CTWSRO

The Confederated Tribes of the Warm Springs Reservation of Oregon

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SUB-CONTRACTORS:

University of Montana - genetic analysis as described in project tasks.

GOALS

NPPC PROGRAM MEASURE:

7.4L.1

RELATION TO MEASURE:

The original measure called for additional facilities to provide for outplanting of about 2.3 million to 3 million spring chinook juveniles in the five Oregon rivers identified. The Council maintained that the fish and wildlife agencies and tribes should play the lead role in developing the master plan for the northeastern Oregon hatchery. It also maintains that the facility need not necessarily be limited to spring chinook salmon, as originally proposed, if other stocks would benefit from hatchery supplementation. Furthermore, monitoring and evaluation studies should be coordinated with supplementation research and related management and with propagation activities. The Hood River Production Program component of Northeast Oregon Production Facilities was disaggregated from the other basins and the Hood River and Pelton Ladder Ma

TARGET STOCK	<u>LIFE STAGE</u>	MGMT CODE (see below)
Deschutes Stock Spring Chinook Salmon	All	s,e
Hood River Stock Summer Steelhead	All	s,w,p
Hood River Stock Winter Steelhead	All	s,w,p

AFFECTED STOCK BENEFIT OR DETRIMENT

Bull troutBeneficialCoho salmonNAFall chinook salmonNA

BACKGROUND

LAND AREA INFORMATION

Stream name:
Hood River
Hood River
Land ownership:
both

Acres affected:

225,352

HISTORY:

The Northwest Power Planning Council approved the Hood River and Pelton ladder master plans in 1992. The program implemented in the Hood River subbasin was initially called the Hood River Production Program (HRPP) and was designed to improve natural production of summer and winter steelhead and re-establish spring chinook salmon in the subbasin. ODFW began funding the wild winter steelhead component of the program in December, 1991 along with the collection of pre-

implementation data on life history and production information. BPA began funding the monitoring and evaluation component of HRPP in August of 1992 and began preparing the programs EIS in 1995; which was completed in 1996. The HRPP includes the development of hatchery facilities in the subbasin. The Powerdale Dam collection facility and access road was completed in December, 1996. Acclimation sites were developed and used in 1996. Modifications to the programs rearing facilities in Pelton ladder were completed in September, 1995 and additional spring chinook salmon were transferred to the new cells. Plans are to use the production from two cells to re-establish spring chinook salmon in the Hood River system. Studies for Pelton ladder to evaluate the effect of the new cells on the existing production were implemented in 1996.

The HRPP is a coordinated effort between ODFW and CTWS. Accordingly, the actions of this contract with ODFW represent one half of the combined actions needed to complete the Hood River/Pelton Ladder Production Project.

This project was initiated as one of the Northeast Oregon Hatchery Projects. It has evolved into a Fishery Management Project that will use a range of management techniques to re-establish a population of spring chinook salmon and improve the numbers of steelhead in the Hood River subbasin without adversely impacting the existing aquatic ecosystem.

BIOLOGICAL RESULTS ACHIEVED:

A monitoring and evaluation program was begun in December of 1991 to collect the life history and production information needed to evaluate the HRPP and develop guidelines which will provide the greatest degree of protection to the native stocks of fish. We are currently collecting information on natural production, smolt to adult survival, escapement, harvest, life history, and several morphological and meristic parameters needed to characterize wild and hatchery stocks of summer and winter steelhead and natural and hatchery stocks of spring chinook salmon. Data collected to date has more accurately defined 1) the spatial distribution of spawning and rearing populations of anadromous salmonids; 2) the current status of indigenous populations of summer and winter steelhead; 3) potential impacts the historical subbasin hatchery program may have had on indigenous populations of fish; and 4) the status of presently available anadromous salmonid habitat in the subbasin. Information has been used to refine our approach for releasing hatchery smolts into the subbasin. Current data showing critically low escapements and natural smolt production also indicate the need to implement this program in a timely manner.

PROJECT REPORTS AND PAPERS:

Olsen, E.A., R.A. French, and A.D. Ritchey. 1995. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of Confederated Tribes of the Warm Springs Reservation and Oregon Department of Fish and Wildlife (Project Numbers 88 29, 89 29 01, 89 053 03, 89 053 04, and 93 019; Contract Numbers DE BI79-89BP00631, DE BI79-89BP00632, DE BI79-93BP81756, DE BI79-93BP81758, DE BI79-93BP99921) to Bonneville Power Administration, Portland, Oregon.

Olsen, E.A., R.A. French, J.A. Newton. 1994. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of Confederated Tribes of the Warm Springs Reservation and Oregon Department of Fish and Wildlife (Project Numbers 89 29, 89 29 01, 89 053 03, 89 053 04, and 93 019; Contract Numbers DE BI79-89BP00631, DE BI79-89BP00632, DE BI79-93BP81756, DE BI79-93BP81758, DE BI79-93BP99921) to Bonneville Power Administration, Portland, Oregon.

Oregon Department of Fish and Wildlife and Confederated Tribes of the Warm Springs Reservation of Oregon. 1990. Hood River subbasin salmon and steelhead production plan. Columbia Basin System Planning Report to Northwest Power Planning Council, Portland, Oregon.

O'Toole, P., and Oregon Department of Fish and Wildlife. 1991. Hood river production master plan. Final Report of the Confederated Tribes of the Warm Springs Reservation and the Oregon Department of Fish and Wildlife (Project 88-053, Contract DE-BI79-89BP00631) to Bonneville Power Administration, Portland, Oregon.

O'Toole, P., and Oregon Department of Fish and Wildlife. 1991. Hood river production master plan (Appendices). Final Report of the Confederated Tribes of the Warm Springs Reservation and the Oregon Department of Fish and Wildlife (Project 88-053, Contract DE-BI79-89BP00631) to Bonneville Power Administration, Portland, Oregon.

Smith, M., and Confederated Tribes of the Warm Springs Reservation of Oregon. 1991. Pelton Ladder master plan. Final Report of the Oregon Department of Fish and Wildlife and the Confederated Tribes of the Warm Springs Reservation (Project 89-029, Contract DE-BI79-89BP01930) to Bonneville Power Administration, Portland, Oregon.

Oregon Department of Fish and Wildlife and Confederated Tribes of the Warm Springs. Undated. Hood river/Pelton Ladder master agreement. Project Plan of Oregon Department of Fish and Wildlife and Confederated Tribes of the Warm Springs Reservation of Oregon (Project 89-029; Contract DE-BI79-93BP81758) to Bonneville Power Administration, Portland, Oregon. (Unpublished draft.)

Bonneville Power Administration. 1996. Draft environmental impact statement. Bonneville Power Administration (Contract DOE/EIS-0241). Portland, Oregon.

Oregon Department of Fish and Wildlife and The Confederated Tribes of the Warm Springs Reservation of Oregon. 1996. Hood River and Pelton Ladder evaluation studies. Annual Progress Report (Project Numbers 88 29, 89 29 01, 89 053 03, 89 053 04, and 93 019; Contract Numbers DE BI79-89BP00631, DE BI79-89BP00632, DE BI79-93BP81756, DE BI79-93BP81758, DE BI79-93BP99921) to Bonneville Power Administration, Portland, Oregon.

ADAPTIVE MANAGEMENT IMPLICATIONS:

We are currently in the process of collecting baseline information which will be used to evaluate the HRPP. Preliminary information gathered from the monitoring and evaluation studies has been used to modify and refine guidelines for implementing the HRPP and has shown the necessity for implementing the HRPP in a timely manner. Radio telemetry work has shown that the East and Middle forks of the Hood River are primarily utilized by winter steelhead and that the West Fork of the Hood River is primarily utilized by summer steelhead and spring chinook salmon. This information has been used to identify where hatchery smolts will be released in the subbasin. The low post-release survival rate observed for hatchery summer and winter steelhead smolt releases has shown the need to develop acclimation facilities for improving survival subsequent to release. Critically low and declining escapements of summer and winter steelhead, and the low estimates of wild steelhead smolt production, indicate the need to quickly implement the HRPP. ODFW's implementation of the native winter steelhead hatchery brood stock collection program, at a reduced level, has provided the basis for developing hatchery guidelines that will be used for fully implementing the native winter steelhead program under the HRPP. Habitat data is currently being evaluated to identify opportunities for increasing natural production in selected areas of the drainage. Data collected on stream flows in the East Fork of the Hood River indicate the need to take a more proactive approach towards enforcing existing water rights with the goal of providing a greater degree of protection for indigenous populations of fish.

Rearing juvenile spring chinook in the Pelton ladder has proven to be a feasible and successful means of increasing adult returns. Spring chinook smolts rear well in the ladder, apparently benefited by the semi-natural rearing conditions. Specifically, this project has created three additional rearing cells in the Pelton ladder. The modifications will allow the HRPP the capability to rear 187,000 Deschutes spring chinook smolts for release into the Hood River subbasin.

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:

The monitoring and evaluation studies are designed to provide the information needed to effectively implement the HRPP. Four broad categories of information will be collected on the Hood River to evaluate whether or not the HRPP is achieving its stated goals and objectives. Our management plan proposes collecting pre- and post- treatment data on smolt to adult survival, natural production (smolts), spawner escapements, various morphometric and meristic characteristics, juvenile rearing distribution, and temporal and spatial distribution of adult holding and spawning. Post-release survival rates will be used to evaluate the acclimation facilities and develop methodologies for optimizing survival at each facility. Estimates of natural smolt production will be monitored to evaluate whether or not we are increasing natural production. Estimates of spawner escapement will be used to determine whether or not we can achieve juvenile rearing capacity. A comparison of life history information and morphological and meristic characteristics of wild and hatchery stocks will be used to determine if 1) the genetic makeup of hatchery broodstock significantly deviates from the indigenous population and 2) the genetic makeup of indigenous populations has been impacted as a result of the HRPP. Information on the distribution of rearing juveniles and the temporal and spatial distribution of adult holding and spawning will be used to minimize the interaction between wild and hatchery fish. For the Pelton ladder portion of the HRPP a measurement of smolt survival will be used to compare pre-modification vs. postmodification adult production. Evaluation of these measurements will provide recommendations for continuation of the expanded production program, potential for further expanding production in Pelton ladder, or reversion to the original rearing plan. Also, evaluation studies determining effective production goals for spring chinook smolts reared in RBH, the existing (old) section of Pelton ladder, and the proposed (new) section of Pelton ladder have been implemented.

CRITICAL UNCERTAINTIES:

Critical uncertainties associated with the HRPP primarily center around our ability to implement a program that will have minimal impact on the wild population. Areas of primary concern include the following:

- 1) Hatchery broodstock is collected from throughout the entire run and juvenile hatchery production is not graded out prior to release. This combination of actions increases the potential that juveniles will not be at a typical smolt size at time of release and that the percentage of hatchery juveniles that residualize will be higher as a consequence. The extent to which residualism occurs will increase the potential for interaction between wild and hatchery juveniles and will reduce the post-release survival rate,
- 2) Modifications are being made to the Powerdale Dam fish ladder as part of the overall development of the hatchery collection facilities. It is assumed that the modified ladder will not delay or impede passage of jack and adult salmonids above the dam. Further changes to the ladder may be necessary if passage is a problem,
- 3) The historical hatchery summer and winter steelhead program was implemented using out-of-basis stocks. The early run Big Creek stock of winter steelhead used as hatchery broodstock is not thought to have had a genetic impact on the native population because the Big Creek stock appears to spawn much earlier than the native population. The similarity in run timing between the wild Hood River stock of summer steelhead and the early run timing of the Skamania stock of hatchery summer steelhead used in the historical hatchery program indicates that some introgression of Skamania stock genes may have occurred in the wild population. This is based on the belief that wild Hood River stock of summer steelhead, historically, had a much later run timing. The degree to which there was interaction between the wild and Skamania stocks of summer steelhead will influence the time frame required to develop a hatchery stock similar to the native Hood River stock,
- 4) With doubling the capacity of Pelton ladder production, an additional 210 adults will be needed for broodstock for the HRPP. The primary source of broodstock for the Hood River will eventually be from adults captured at the Powerdale fish trap, with adults from the Pelton ladder as a backup source,
- 5) The addition of three rearing cells in Pelton ladder may reduce spring chinook production growth rates and influence overall survival, and
- 6) Increasing production of spring chinook salmon at Pelton ladder may increase the potential for disease proliferation or incidence in the hatchery facilities or in the Deschutes or Hood Rivers. Studies in Pelton ladder have shown no more than a four percent loss to Ceratomyxa when fish are transferred to the ladder in mid-to-late July.
- 7) There should be no biological risks associated with the spring chinook program in the Hood River because the native population has been extirpated. The program in the Deschutes may have some low genetic risks, however, it is guided by the ODFW geneticist and the State's Wild Fish Management Policy.

BIOLOGICAL NEED:

The primary goal of the HRPP is to restore wild runs of summer and winter steelhead and to re-introduce a naturally reproducing spring chinook salmon population in the Hood River subbasin. The historical hatchery supplementation program utilized Skamania stock summer steelhead, Big Creek stock winter steelhead, and Carson stock spring chinook salmon. The HRPP would utilize Hood River wild stocks of summer and winter steelhead to develop hatchery broodstock with the primary goal of developing a hatchery fish that is more genetically similar to the indigenous populations. Deschutes stock spring chinook salmon would be used as hatchery broodstock because it is felt that this stock is more suitable for the Hood River subbasin. We are also proposing to collect hatchery broodstock from throughout the run, not grade out juvenile fish in the hatchery production groups, and rear spring chinook salmon in Pelton ladder. This combination of actions is designed to produce a high quality hatchery smolt that is genetically similar to the wild population. Because of current funding constraints, it is doubtful that this more biologically sound approach could be implemented by ODFW without funding from BPA.

HYPOTHESIS TO BE TESTED:

- 1. Null Hypothesis: Run size and spawner escapement goals in the Hood River Master Plan have not been achieved. Alternative: Run size and spawner escapement goals in the Hood River Master Plan have been achieved.
- 2. Null Hypothesis: Post-project implementation smolt production is not significantly greater than pre-project implementation. Alternative: Post-project implementation smolt production is significantly greater than pre-project implementation.
- 3. Null Hypothesis: Post-release survival of acclimated smolts is not significantly greater than pre-project releases of hatchery smolts directly released into the subbasin.

Alternative: Post-release survival of acclimated smolts is significantly greater than pre-project releases of hatchery smolts directly released into the subbasin.

- 4. Null Hypothesis: Implementation of the HRPP has significantly altered the genetic makeup of indigenous populations of fish. Alternative: Implementation of the HRPP has not significantly altered the genetic makeup of indigenous populations of fish.
- 5. Null Hypothesis: The genetic makeup of the hatchery broodstock significantly deviates from the corresponding native population from which it was derived.

Alternative: The genetic makeup of the hatchery broodstock does not significantly deviate from the corresponding native population from which it was derived.

- 6. Null Hypothesis: Modifying Pelton ladder reduces effectiveness of the existing production program. Alternative: Modifying Pelton ladder does not reduce effectiveness of the existing production program.
- 7. Null Hypothesis: Effective production potential does not exist in the currently unused section of Pelton ladder.
- 8. Alternative: Effective production potential exists in the currently unused section of Pelton ladder.

ALTERNATIVE APPROACHES:

Alternative 1 (Traditional Hatchery): Re-establish or rebuild and sustain populations of anadromous salmonids in the Hood River subbasin via a traditional hatchery program. This alternative was eliminated from detailed evaluation in the EIS since it would not meet the need for mitigating and protecting self-sustaining anadromous fish populations. Alternative 2 (Supplementation): Re-establish or rebuild and sustain populations of anadromous salmonids in the Hood River subbasin via supplementation and a monitoring and evaluation program only. This alternative lacked the positive impacts of habitat improvement actions. Alternative 3 (Habitat Improvement): Re-establish or rebuild and sustain populations of anadromous salmonids in the Hood River subbasin via a program of habitat improvements and monitoring and evaluation program only. Hood River summer steelhead and winter steelhead adult numbers are low and Hood River spring chinook salmon are extirpated, without supplementation recovery of runs would be difficult. The HRPP has the best potential for re-establishing or rebuilding and sustaining populations of anadromous salmonids in the Hood River subbasin via a combination of supplementation, habitat improvements, and a monitoring and evaluation program because it best meets the need and purposes stated in the Hood River and Pelton Ladder Master Plans.

JUSTIFICATION FOR PLANNING:

N/A Ongoing M&E study

METHODS:

The HRPP will primarily be evaluated using the following techniques:

- 1 Scoop traps will be operated at sites located in each major fork of the Hood River and in the mainstem Hood River to estimate numbers of wild anadromous salmonid smolt and fingerlings production leaving the Hood River subbasin and to estimate the numbers of hatchery smolts leaving the subbasin (i.e. in-basin post-release survival). Numbers of smolts and fingerlings passing each scoop trap will be estimated using the Peterson mark and recapture methodology. Outmigration comparisons between hatchery smolts and natural production of spring chinook salmon and winter steelhead will be evaluated.
- 2 Significance of residualism will be evaluated using electroshocking and snorkel surveys.
- 3 An adult collection facility (Pelton adult trap) will be operated on the Deschutes River. Numbers from the Pelton adult trap, along with expanded Indian and sport catch figures from the Deschutes River creels, will be used to monitor adult escapement. Comparisons among Pelton ladder cells and Round Butte Hatchery ponds are based on adult survival.
- 4 The project will be acclimating all hatchery spring chinook salmon on the West Fork and hatchery winter steelhead on the East Fork using portable raceways. The portable raceways will be gravity fed and fish will be volitionally released. Evaluation of these fish will occur as described in methods (1) and (2).

PLANNED ACTIVITIES

SCHEDULE:

Planning Phase Start 11/95 End ongoing Subcontractor

<u>Task</u> Determine what subspecies of O. mykiss and O. clarki exist in the subbasin and if there are any sensitive gene pools that may be impacted by HRPP actions.

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<u>Planning Phase</u> <u>Start</u> 11/95 <u>End</u> ongoing <u>Subcontractor</u>

Task Compare spring chinook smolts transferred to Pelton ladder in September vs. November.

<u>Planning Phase</u> <u>Start</u> 09/96 <u>End</u> ongoing <u>Subcontractor</u>

Task Estimate adult survival from returns to Pelton ladder.

<u>Planning Phase</u> <u>Start</u> 11/95 <u>End</u> ongoing <u>Subcontractor</u>

<u>Task</u> Compare smolt survival of spring chinook reared in the new vs. old cells in Pelton ladder.

<u>Planning Phase</u> <u>Start</u> 1997 <u>End</u> ongoing <u>Subcontractor</u>

<u>Task</u> Develop and update the project management plan for the HRPP.

<u>Planning Phase</u> <u>Start</u> 07/90 <u>End</u> ongoing <u>Subcontractor</u>

<u>Task</u> Monitor water quality in the Hood River subbasin (water temperature and flow).

<u>Planning Phase</u> <u>Start</u> 1997 <u>End</u> ongoing <u>Subcontractor</u>

<u>Task</u> Prepare a document that outlines program objectives and implementation guidelines for the Hood River hatchery supplementation program. The report should include brood stock collection methodology based on run timing and population size.

<u>Planning Phase</u> <u>Start</u> 1997 <u>End</u> ongoing <u>Subcontractor</u>

Task Develop a habitat/restoration plan for the Hood River subbasin.

<u>Planning Phase</u> <u>Start</u> 07/94 <u>End</u> ongoing <u>Subcontractor</u> University of Montana

<u>Task</u> Determine abundance, distribution, life history patterns, and habitat carrying capacity for anadromous and resident fishes.

Planning Phase Start 12/91 End ongoing Subcontractor

Task Estimate jack and adult anadromous salmonid escapement to the Hood River.

Implementation Phase Start 10/97 End ongoing Subcontractor

<u>Task</u> Develop experimental design and evaluate effectiveness of acclimation of spring chinook salmon and winter steelhead smolts. Provide habitat restoration and enhancement to the Hood River subbasin.

<u>Implementation Phase</u> <u>Start</u> 03/96 <u>End</u> ongoing <u>Subcontractor</u>

<u>Task</u> Develop experimental design and evaluate effectiveness of acclimation of spring chinook salmon and winter steelhead smolts.

PROJECT COMPLETION DATE:

Project is ongoing

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:

There should be few constraints or factors associated with implementing the HRPP given the proposed scenario for implementing the program. Social and political constraints should be minimal based on the strong support we have received to date from PacifiCorp, the various irrigation cooperatives, and local area sport fisherman. The utilities, irrigation cooperatives, and Longview Fibre have also provided access to their property either for purposes of monitoring and evaluation or the development of facilities needed to implement the HRPP. Cooperation in this area has been crucial to implementing the HRPP because of the limited access available in the Hood River subbasin. There may be some biological risks associated with the program but hatchery guidelines are being developed to minimize these risks. These guidelines will be based on information collected from an ongoing monitoring and evaluation program. Our primary goal is to minimize the impact on wild populations of summer and winter steelhead. The should be no biological risks associated with spring chinook salmon program because the native population has been extirpated. Guidelines established for implementing the HRPP are designed to minimize biological risks associated with the summer and winter steelhead programs by 1) developing the hatchery broodstock from adults collected from throughout the wild run to the Hood River subbasin, 2) not grading out smaller juveniles in the production groups, 3) limiting production releases of each race to those forks where the population is principally located, and 4) releasing production groups at the lower end of the distribution of the population. The combined effect of these, and other, actions should minimize the impact the supplementation program has on the wild populations of steelhead.

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OUTCOMES, MONITORING AND EVALUATION

SUMMARY OF EXPECTED OUTCOMES

Expected performance of target population or quality change in land area affected:

The HRPP is an ongoing project with these expectations:

- 1 Improve wild summer and winter steelhead escapement to meet program objectives (i.e. 8,000 summer steelhead and 5,000 winter steelhead) and re-introduce spring chinook salmon. The program objective for spring chinook salmon is 1,700 adults.
- 2 ensure that hatchery broodstock is genetically similar to the wild runs by developing the broodstock from wild Hood River stock fish escaping to Powerdale dam,
- 3 complete construction of hatchery collection facilities at Powerdale Dam and the isolation, incubation, and rearing facilities at Oak Springs Hatchery; adult holding and spawning facilities at Parkdale; and rearing facilities at Pelton ladder,
- 4 develop, operate, and evaluate temporary acclimation facilities in each major fork of the Hood River subbasin,
- 5 develop biologically based guidelines for implementing the HRPP based on data collected from the monitoring and evaluation studies,
- 6 identify and implement habitat improvement projects that will enhance project benefits, and
- 7 increase harvest opportunities in both tribal and non-tribal fisheries, and
- 8 rearing additional fish in Pelton ladder provides fishery managers with a low-cost alternative to making major financial investments in new formal hatchery facilities. Adult chinook returning form this rearing program will help bolster the dwindling runs of upper Columbia River spring chinook salmon, thus helping to meet the Council's goal for increased production of this species. The Deschutes River Subbasin Plan envisions need for additional return of hatchery-produced spring chinook salmon in order to meet goals for increased harvest opportunity. The majority of smolts produced in the new ladder section will be released in the Hood River. Because of unique survival and adult production attributes, low cost and excellent quality, chinook smolts produced in Pelton ladder represent an unparalleled opportunity to restore the Hood River population.

Present utilization and convservation potential of target population or area:

Current Oregon angling regulations require the release of all naturally produced summer and winter steelhead caught by anglers in the Columbia and Hood Rivers. The Tribes have chosen to refrain from harvest in the Hood River because of low runs of fish. Only when stocks are rebuilt will they be interested in participating in a tightly regulated fishery. Commercial harvest of these steelhead stocks has been limited by the timing and duration of Zone 6 fishing seasons. This harvest protection provides the opportunity to optimize Hood River spawner escapement, as the result of zero sport harvest. Spring chinook salmon harvest has been precluded for sport anglers in the Columbia River in order to provide optimum protection for threatened or endangered upper Columbia River Basin stocks. Commercial harvest of this species in the Columbia River has also been restricted to protect threatened upper river stocks. There is limited sport harvest opportunity for spring chinook salmon in the Hood River subbasin.

Assumed historic status of utilization and conservation potential:

Historic fishery data for the Hood River subbasin is limited to the past 40 years. Available sport harvest data show harvest approached 2500 fish in the mid-1960's. Salmon harvest in the subbasin was estimated at 250 fish in 1958. Steelhead runs began slowly declining in the 1980's and 1990's, which likely reflected problems with mainstem passage, subbasin fish passage, screening and habitat degradation. Spring chinook salmon were extirpated from the subbasin by the early 1970's. The demise of this stock was also likely associated with the same factors influencing steelhead numbers. Steelhead and spring chinook salmon (reintroduced) numbers are well below the carrying capacity of the subbasin, based on habitat availability and condition. The fish stock spawner escapement objectives (i.e. 2,400 summer steelhead; 2,400 winter steelhead; and 400 spring chinook salmon) are based on the quantity and quality of available habitat in the subbasin.

Long term expected utilization and conservation potential for target population or habitat:

When adult summer steelhead run to the river objectives are reached there will be up to 5,400 fish available for in-river harvest. When the adult winter steelhead run to the river objectives are reached there will be up to 2,500 fish available for in-river harvest. When the adult spring chinook salmon run to the river objective is met there will be up to 1,100 fish available for in-river harvest. In addition, there is opportunity for ocean and/or Columbia River sport or commercial harvest. When the summer steelhead population has reached the project objective for the run to the river there would be at least a 2,400 adult spawner escapement, with 165 to 200 available for hatchery brood. When the winter steelhead population has reached the project objective for the run to the river there would be at least a 2,400 adult spawner escapement, with 90 to 100 available for hatchery brood. When the spring chinook salmon population has reached the project objective for the run to the river there would be at least a 400 adult spawner escapement, with 200 available for hatchery brood.

Contribution toward long-term goal:

Our project is a research program to monitor and evaluate the success of actions needed to achieve the project biological objectives of restoring self-sustaining runs of summer and winter steelhead and spring chinook salmon. Habitat restoration/protection actions will support supplementation efforts. CTWS will also provide coordination and representation of input into the construction, operation, and maintenance of supplementation facilities for spring chinook salmon and summer and winter steelhead production for the betterment of our project.

Indirect biological or environmental changes:

The Hood River portion of the HRPP offers indirect biological benefits:

1 Based on the System Planning Model, it is estimated that the HRPP will contribute approximately 15,000 adult salmon and steelhead (2,212 spring chinook salmon, 8,505 summer steelhead, and 4,819 winter steelhead) to the Council's doubling goal. In addition, a total of 2,428 adults (299 spring chinook salmon, 1,359 summer steelhead, and 770 winter steelhead) will be contributed to ocean and Columbia River fisheries. Furthermore, all habitat projects related to the project will indirectly benefit non-targeted populations of fish.

The Pelton ladder portion of the HRPP offers a number of indirect biological benefits:

- 1 Because of their unique survival and adult-production attributes, low cost and excellent quality, the spring chinook salmon smolts produced in Pelton ladder represent an unparalleled opportunity to restore or improve runs in other Columbia River tributaries that may be designated as appropriate donor streams.
- 2 Spring chinook salmon released from Pelton ladder will provide a number of harvest benefits. Based on past performance, approximately 6 percent of the adults produced will be caught in sport, commercial, and tribal subsistence fisheries in the Columbia River. Most benefits of the extra adults produced, however, will be realized in the Deschutes River in the form of increased sport and tribal harvest and increased returns to Round Butte Hatchery

Physical products:

Three portable ponds were used acclimate winter steelhead and spring chinook salmon smolts on the Hood River. The following number of project smolts are expected to be acclimated and released into the Hood River subbasin during FY 98: summer steelhead - 0; winter steelhead - 85,000; spring chinook salmon - 125,000. All of these smolts (100%) will be externally marked. Spring chinook smolts were reared 6 months at Pelton ladder prior to being transferred to the Hood River for acclimation and release. The habitat restoration and enhancement portion of the HRPP is a small portion of the 1998 requested budget and will provide money towards projects as approved by project staff. Proposed habitat projects for FY 1998 include an estimated 2 miles of riparian fence, 300 yards of rip rap, riparian revegetation, reconstruction of side channel rearing habitat, and culvert repair.

Environmental attributes affected by the project:

N/A

Changes assumed or expected for affected environmental attributes:

N/A

Measure of attribute changes:

N/A

Assessment of effects on project outcomes of critical uncertainty:

The monitoring and evaluation project will provide the necessary feedback used to evaluate the critical uncertainties related to the HRPP. Currently the M&E program is addressing some of the critical uncertainties through research studies. Fish management decisions have been made to help minimize or eliminate critical uncertainties in regards to the HRPP.

Information products:

This project implements tasks designed to monitor and evaluate the HRPP (Hood River and Pelton ladder study). The product deliverable is an Annual Progress Report that provides a summary of data collected and analysis, to date, on the HRPP.

Coordination outcomes:

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The sequence of milestones were: 1. Hood River Master Plan; 2. Hood River / Pelton Ladder Master Agreement (outlines work schedules); 3. Initiation and near completion of baseline studies; 4. Completion of NEPA analysis and EIS in 1996; 5. Completion, in 1996, of road construction to the proposed Powerdale dam fish facility; 6. Development of acclimation facilities for winter steelhead and spring chinook salmon; and 7. Completion, in 1997, of the proposed Powerdale dam fish facility.

MONITORING APPROACH

The HRPP will primarily be evaluated using the following techniques:

- 1) Migrant screw traps will be operated at sites located in each major fork of the Hood River and in the mainstem Hood River to estimate numbers of wild anadromous salmonid smolt and fingerlings production leaving the Hood River subbasin and to estimate the numbers of hatchery smolts leaving the subbasin (i.e. in-basin post-release survival). Numbers of smolts and fingerlings passing each screw trap will be estimated using the Peterson mark and recapture methodology. Outmigration comparisons between hatchery smolts and natural production of spring chinook salmon and winter steelhead will be evaluated.

 2) Significance of residualism will be evaluated using electroshocking and snorkel surveys.
- 3) An adult collection facility (Pelton adult trap) will be operated on the Deschutes River. Numbers from the Pelton adult trap, along with expanded Indian and sport catch figures from the Deschutes River creels, will be used to monitor adult escapement. Comparisons among Pelton Ladder cells and Round Butte Hatchery ponds are based on adult survival.
- 4) The project will be acclimating all hatchery spring chinook salmon on the West Fork and hatchery winter steelhead on the East Fork using portable raceways. The portable raceways will be gravity fed and fish will be volitionally released. Evaluation of these fish will occur as described in methods (1) and (2).
- 5) The project will monitor and evaluate habitat projects on a site by site basis. Habitat projects will be evaluated by the success or failure to provide the designed objective for each site.

Provisions to monitor population status or habitat quality:

Migrant screw traps are being used to monitor steelhead and spring chinook salmon smolt production and juvenile population numbers and biomass are estimated at selected sites in the subbasin. All jack and adult salmonids are counted at Powerdale dam to estimate spawner escapement and harvest estimates are made below Powerdale dam to estimate escapement to the Hood River subbasin.

Data analysis and evaluation:

A statistical analysis of data collected prior to, and after, implementation of the Hood River Production Program will be made to evaluate how effectively program goals have been met and what steps may be necessary to optimize the benefits associated with the HRPP.

Information feed back to management decisions:

Data collected by this project will be used to develop guidelines for implementing the HRPP. Research and management components of the HRPP are closely coordinated and recommendations for implementing the HRPP are made on an annual basis, as well as when new information becomes available.

Critical uncertainties affecting project's outcomes:

Critical uncertainties in relation to the HRPP, addressed earlier in this document, are being studied and evaluated and management and research decisions are made to eliminate or minimize the critical uncertainties. Fish management decisions are made based on scientific fisheries research.N/A - on second question.

EVALUATION

Completed annual reports as required by BPA that summarized yearly M&E tasks outlined in the statement of works. The annual report for the HRPP summarizes adult run totals, smolt outmigration, facility construction, acclimation evaluation, Pelton ladder studies, life history studies, habitat projects, and an overview of the entire program.

The HRPP is working towards the primary goals to (1) re-establish naturally sustaining spring chinook salmon (escapement objective 1,700 adults) using Deschutes stock in the Hood River subbasin, (2) rebuild naturally sustaining runs of summer and winter steelhead (i.e. escapement objectives 8,000 summer steelhead and 5,000 winter steelhead) in the Hood River, (3) maintain the genetic characteristics of the population, and (4) contribute to tribal and non-tribal fisheries, ocean fisheries, and the NPPC's goal of doubling salmon runs in the Columbia Basin.

Currently the USFS, PacifiCorp, the Hood River Watershed Group, and other agencies and public are involved in helping improve fish runs on the Hood River. Involving other entities in attaining the same goals as the HRPP is a cost benefit to the

project and will help maintain fish runs long after the project is complete.

Incorporating new information regarding uncertainties:

All entities involved with the HRPP are consulted and decisions are made as a unit when new information becomes available about uncertainties affecting the project. There is a good working relationship between ODFW, USFS, PacifiCorp, other involved entities, and the CTWS on the Hood River. The HRPP is evaluated annually. In 2002, the monitoring and evaluation program would provide the feedback to indicate whether the HRPP supplementation program is moving in the right direction and whether additional increases or decreases in production is needed.

Increasing public awareness of F&W activities:

The primary function of this project is to collect information that can be used to evaluate the HRPP and to provide information that can be used to more effectively implement the HRPP. The product deliverable is an Annual Progress Report which contains a summary, of the data collected, and management recommendations for implementing the HRPP. These reports have been requested by, and provided to, sport fishermen who are interested in the success of the project.

Public involvement in the acclimation portion of our project has been successful in educating people on the importance of the HRPP. The CTWS has provided tours of the acclimation sites and other project facilities, held outdoor school classes for the elementary schools, and involved public volunteers in the set-up of the acclimation sites.

The habitat portion will restore and enhance project sites within the Hood River. Habitat projects will encourage local landowners to assist fisheries in providing the needed habitat for salmon and steelhead on private lands.

CTWS staff for the HRPP has periodically given presentations to groups interested in the HRPP. Presentations have been given to local fishermen groups, local agencies, the Hood River Watershed Group, local newspapers, and the Northwest Fish Culture Conference. HRPP staff will continue to educate and update the agencies and local landowners on how the project is succeeding.}

RELATIONSHIPS

RELATED BPA PROJECT

9500700 Hood River Production Program - Pge O&M

9301900 Design/Construct Parkdale Facilities, Complete Oak Springs Construction, Operate and Maintain Facilities (hood River Production Program)

8902900 Hood River Prod'n Program - Pelton Ladder - Hatchery

8805304 Hood River Production Program - Odfw - M&E

RELATED NON-BPA PROJECT

Irrigation canal fish salvage/ODFW, CTWS, USFS, and volunteers

Fish habitat restoration/ODFW STEP

Fish inventory and fish stock restoration/ODFW

Instream water right/ODFW

Fish habitat restoration/CTWS (BPA)

Canal fish screening/East Fork Irrigation District

Downstream migrant screening and habitat restoration/Farmers Irrigation District

Temporary adult holding/Middle Fork Irrigation District

Fish habitat inventory and restoration/USFS

Fish inventory/USFS

Powerdale hydroelectric/PacifiCorp

RELATIONSHIP

PGE O&M

ODFW Engineering

Round Butte Hatchery production and Pelton Ladder

ODFW M&E

RELATIONSHIP

End of season fish salvage in Hood River irrigation canals

Habitat restoration on Hood River tributaries

Operation of temporary Powerdale trap and preliminary winter steelhead brood collection

Acquire intream rights for the Hood River and tributaries

Hood River tributary habitat restoration

downstream migrant screening

Screening and habitat restoration on Hood River tributaries

Winter steelhead brood holding area

stream habitat improvements on Hood River tributaries

Radio telemetry/upstream migrant trapping

passage/environmental & fish studies

OPPORTUNITIES FOR COOPERATION:

The HRPP is composed of four separate contracts that could impact the program if one or more contracts are not fully funded according to schedule. The four contracts primarily provide funding for three broad categories of activities. These include engineering, implementation, and monitoring and evaluation studies. Funding for the engineering component of the HRPP provides for the design and construction of facilities at Powerdale Dam, Parkdale, and Oak Springs Hatchery that are needed to implement the HRPP. Funding for implementation provides for broodstock collection, holding, spawning, rearing, and marking and tagging. Funding for monitoring and evaluation studies provides for the evaluation of the HRPP and any interaction the hatchery program may be having on wild populations of fish. Inadequate, or loss of, funding for any component will jeopardize our ability to achieve project goals according to the time frame established in the EIS. This is particularly crucial for construction work proposed for FY 98. The proposed adult holding and acclimation facilities at Parkdale are required to begin implementing the summer steelhead and spring chinook salmon programs. Completion of hatchery facilities at Oak Springs Hatchery also needs to coincide with completion of the Parkdale facilities before we can begin implementing the summer steelhead program. The winter steelhead program can be implemented without the Parkdale facilities but at a much lower level than proposed for full implementation of the HRPP. The HRPP also relies heavily on the close cooperation of the USFS, PacifiCorp, CAWS, ODFW, Hood River Watershed Council, Farmers Irrigation District, East Fork Irrigation District, Middle Fork Irrigation District, and Longview Fibre. These various entities have supported project goals by way of 1) facilitating or allowing access to public and private lands, 2) providing consent to develop facilities on private lands, and 3) assisting in the implementation of project related tasks. Continued cooperation among these entities is crucial to achieving project goals.

COSTS AND FTE

1997 Planned: \$497,000

FUTURE FUNDING NEEDS:

<u>FY</u>	\$ NEED	% PLAN	% IMPLEMENT	<u>% O AND M</u>
1998	\$535,000			
1999	\$555,000			
2000	\$580,000			
2001	\$605,000			
2002	\$630,000			

PAST OBLIGATIONS (incl. 1997 if done):

<u>FY</u>	OBLIGATED
1989	\$50,217
1990	\$86,883
1991	\$11,648
1992	\$36,746
1993	\$66,689
1994	\$601,378
1995	\$40,495
1996	\$480,208
1997	\$512,228

TOTAL: \$1,886,492

Note: Data are past obligations, or amounts committed by year, not amounts billed. Does not include data for related projects.

OTHER NON-FINANCIAL SUPPORTERS:

Critical non-monetary support has been provided from various sources. PacifiCorp; the East Fork, Middle Fork, and Farmers Irrigation cooperative; Longview Fibre; and Mount Hood National Forest have provided access to their property either for purposes of monitoring and evaluation or the development of facilities needed to implement the HRPP. Access to public and private property owned by these entities has been critical for the HRPP to be successful because of the general inaccessibility to the Hood River subbasin.

LONGER TERM COSTS: N/A

The project could incur costs beyond 2002 for both planning and/or implementation depending on how project goals are met. We cannot project what those costs might be at this time

1997 OVERHEAD PERCENT: 36.5%

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:

Overhead % not provided so RPA appended older data. Indirect rate applies to personal services and services and supplies. The in

direct rate does not apply to contractual services ov	er \$5,000 or to capital expenditure	es over \$1,000 (with a life expect	ancy
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